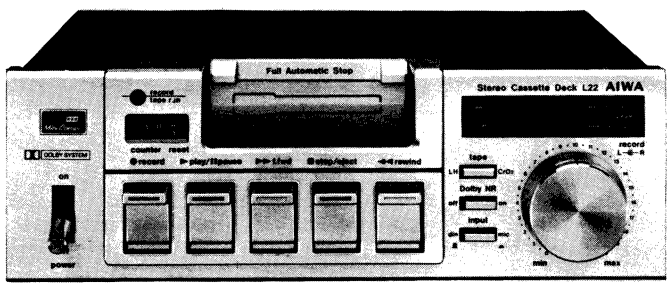
STEREO CASSETTE DECK WITH DOLBY NR SYSTEM

MODEL NO. SD-L22H,E,K,G

AIWA®

[SERVICE MANUAL]

Cord No. 19-220-000-53



DATE OF ISSUE 6/1979

SPECIFICATIONS

Semiconductors:	H, G model 5 IC's, 17 transistors, 8 diodes, 11 LED's E, K model 5 IC's, 19 transistors, 8 diodes, 11 LED's
Power source:	H model AC 110V/220V, switchable 50/60 Hz E model AC 220V, 50 Hz K, G model AC 240V, 50 Hz
Power consumption:	10W
Dimensions:	210(W) x 73(H) x 228(D) mm
Weight:	2.7 kg
Track system:	4-track 2-channel stereo
Tape speed:	4.76 cm/s ± 1%
Wow & flutter:	Less than 0.09% (WRMS) Less than 0.20% (According to DIN 45 500)
Automatic stop system:	Full auto-stop
Automatic shut-off action time:	5 ± 3 s.
Pinch roller pressure:	300 ± 50 g (2.94 ± 0.49 N)
Take-up torque:	50 $^{+20}_{-10}$ g-cm (490 $^{+196}_{-98}$ mN·m)
FF & rewind torque:	140 $^{+60}_{-50}$ g-cm (1372 $^{+588}_{-490}$ mN·m)
FF & rewind time:	Less than 90 s (w/c-60 cassette)
Playback output: (TTA-161)	0.58 ± 0.05V (LINE, DIN)
Playback noise: (Weighted A)	Less than 2.0 mV (LH, DOLBY NR OFF)
Rec./Pb output: (400 Hz 0 VU)	0 VU ± 1.2 dB (LINE)
Rec./Pb distortion: (400 Hz 0 VU)	Less than 2.0% (CrO_2) Less than 1.5% (LH)
Rec./Pb S/N: (400 Hz, Weighted A)	More than 50/56 dB (CrO_2, DOLBY NR OFF/ON) More than 48/54 dB (LH, DOLBY NR OFF/ON)
Channel separation: (1 kHz 0 VU)	More than 35 dB
Cross talk: (1 kHz 0 VU)	More than 65 dB
Erasing ratio: (400 Hz 0 VU +10 dB)	More than 60 dB
Level indicator display error:	± 1.5 dB
Dolby effect:	More than 8 dB
Bias frequency:	85 kHz
Frequency response:	CrO_2 : 25~16,000 Hz LH: 25~14,000 Hz According to DIN 45500 CrO_2 : 30~15,000 Hz LH: 30~12,500 Hz
Motor:	DC servo motor
Head:	Hard permalloy head (for Rec./Pb) Ferrite head (for Erase)
Input:	MIC; Max. input sensitivity 0.3 mV (200Ω~10kΩ suitable) H, G model LINE IN; Max. input sensitivity 50 mV (More than 50kΩ) E, K model DIN: Max. input sensitivity 0.1 mV/kΩ
Output:	H, G model LINE OUT; Standard output level 0.41V (0 VU) Optimum load impedance More than 50kΩ E, K model DIN; Standard output level 0.41V (0 VU) Optimum load impedance More than 50kΩ

- Specifications and external appearance are subject to change without notice due to product improvement.
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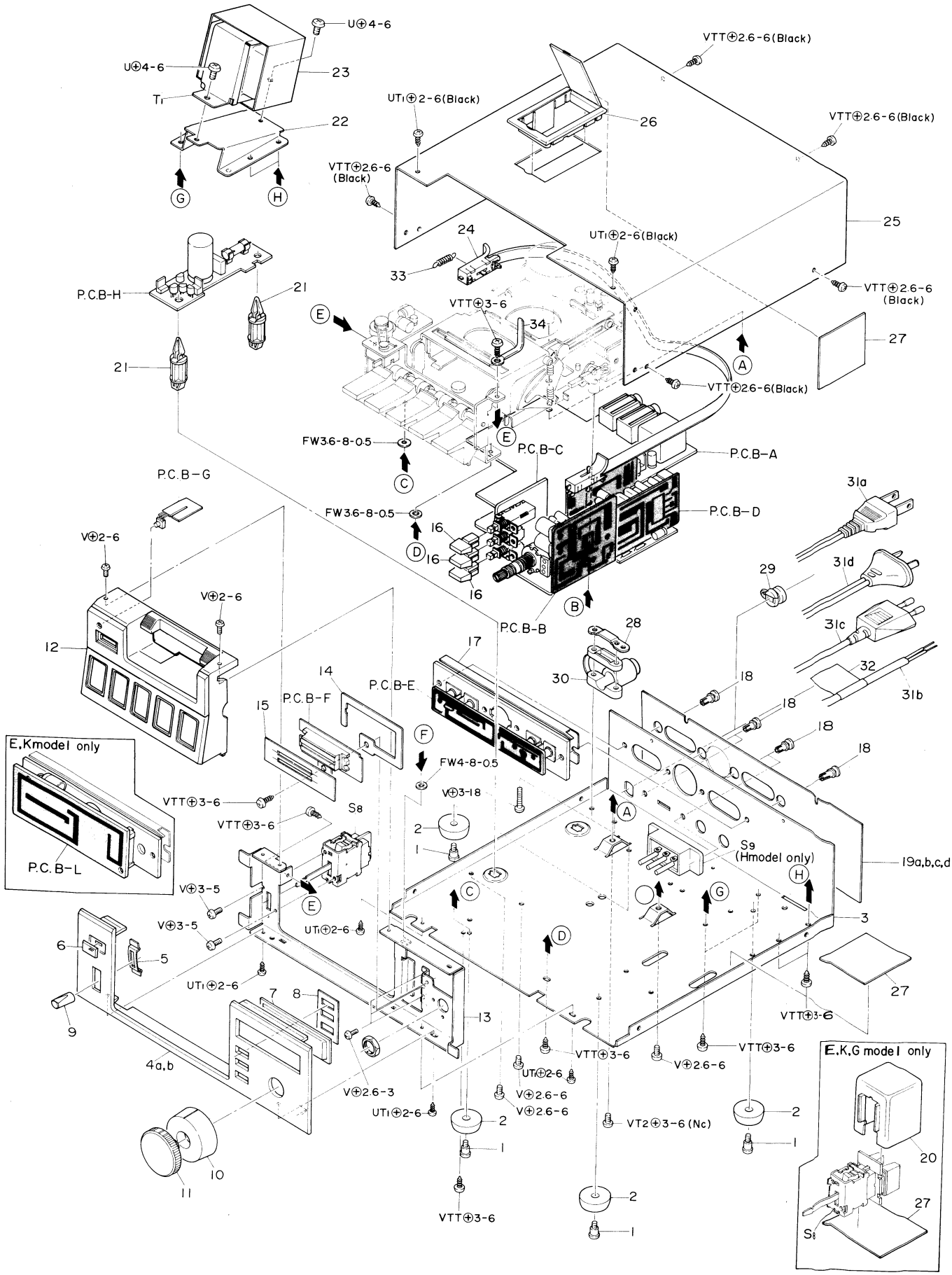
EXPLODED VIEW–1



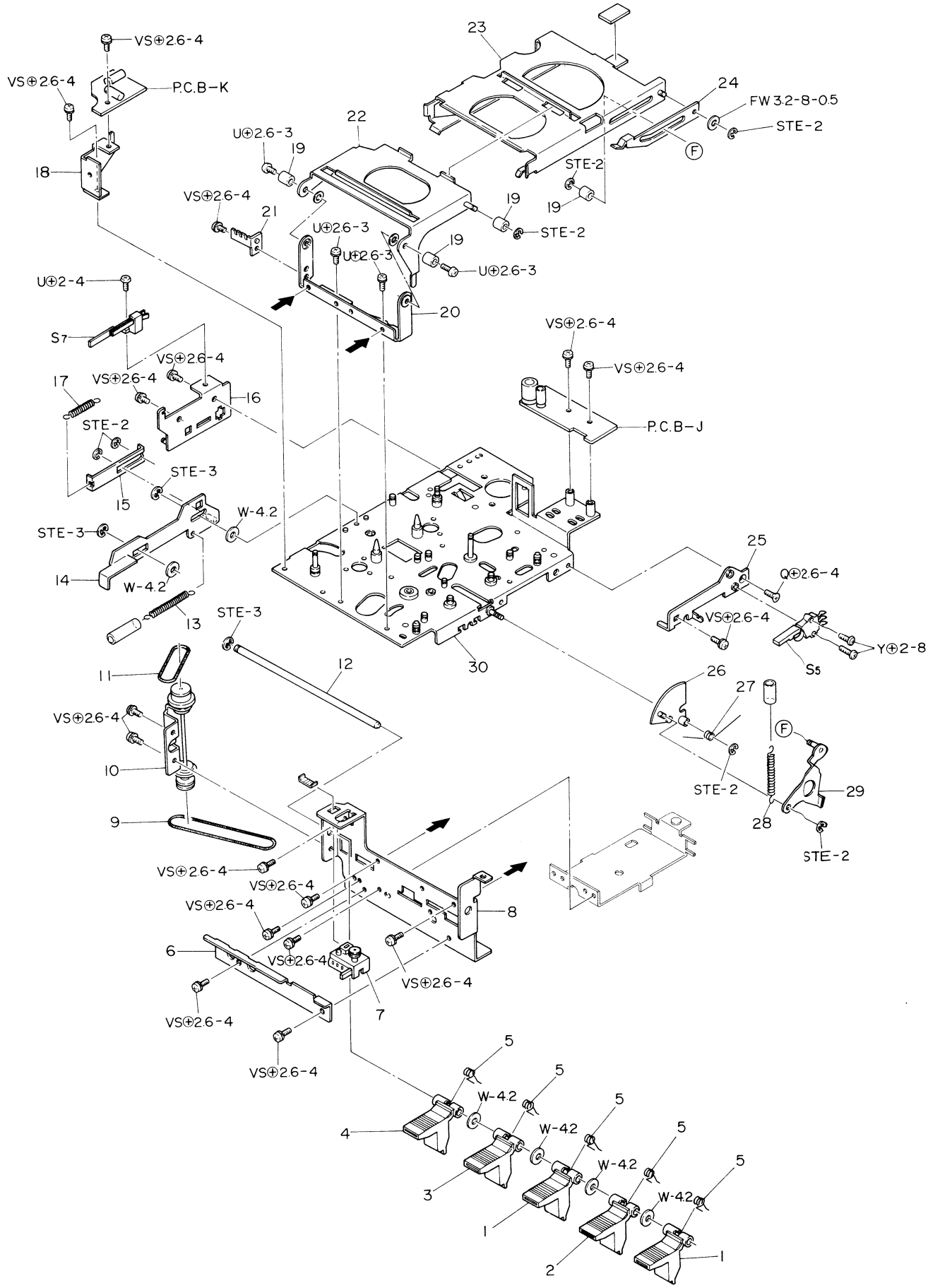
PARTS LIST

MECHANICAL PARTS

■ * mark in this part list shows exclusive part (which is used) for only Model SD-L22.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	87-081-884-01		Screw		4
1-2	85-735-012-01		Rubber foot		4
1-3	82-150-210-01		Amp. chassis H	*	1
1-4a	82-150-020-01		Panel H, Front (H, G model only)	*	1
1-4b	82-150-029-01		Panel E, Front (E, K model only)	*	1
1-5	82-498-008-01		Lever guide	SA-C22	1
1-6	86-992-013-01		Badge, Pet name		1
1-7	82-150-004-01		Window, LED	*	1
1-8	82-150-205-01		Guide, Push button	*	1
1-9	82-498-012-01		Key		1
1-10	82-150-012-01		Knob, Volume (Lower)	*	1
1-11	82-150-011-01		Knob, Volume (Upper)	*	1
1-12	09-047-147-01		Front cabinet ass'y	*	1
	82-150-009-01		Decorative plate, Cassette	*	1
	82-150-006-01		Plate, Push-key	*	1
	82-150-212-01		Adhesive sheet	*	1
	82-150-002-01		Cabinet, Front	*	1
	82-150-007-01		Cassette plate	*	1
	82-150-211-01		Adhesive sheet, Cassette plate	*	1
	82-150-014-01		Cassette lid	*	1
	82-150-208-01		T spring, Cassette lid	*	1
	82-150-206-01		Shaft, Cassette lid	*	1
1-13	82-150-201-01		Front chassis	*	1
1-14	82-150-209-01		Space fiber	*	1
1-15	82-150-005-01		LED plate	*	1
1-16	82-150-013-01		Push button	*	3
1-17	82-386-629-01		Shield plate, Jack	AD-1250	1
1-18	87-085-102-01		Nylon rivet		H:6 E,K,G:4
1-19a	82-150-015-01		Name plate, Jack (H model only)	*	1
1-19b	82-150-017-01		Name plate, Jack (E model only)	*	1
1-19c	82-150-018-01		Name plate, Jack (K model only)	*	1
1-19d	82-150-030-01		Name plate, Jack (G model only)	*	1
1-20	82-730-642-01		Cover, Power switch (E, K, G model only)	ST-R22	1
1-21	82-150-204-01		Holder, Circuit board	*	2
1-22	82-150-214-01		Holder, Power transformer	*	1
1-23	82-150-635-01		Ring, Core	*	1
1-24	87-034-579-01		Wire, Remot switch		1
1-25	82-150-003-01		Steel cabinet	*	1
1-26	82-150-008-01		Head lid	*	1
1-27	82-730-622-01		Insulation, Fiber	ST-R22	H:2 E,K,G:3
1-28	82-735-206-01		Plate, IC (E, K model only)	SA-A22	1
1-29	87-085-165-01		Cord bushing (H, G model only)		1
1-30	87-085-166-01		Holder, AC power cord (E, K, model only)		1
1-31a	87-034-826-01		AC power cord (H model only)		1
1-31b	87-034-872-01		AC power cord (K model only)		1
1-31c	87-034-877-01		AC power cord (E model only)		1
1-31d	87-034-878-01		AC power cord (G model only)		1
1-32	87-056-008-01		Label, AC power cord (K model only)		1
1-33	82-150-207-01		E Spring (REC, Switch)	*	1
1-34	87-038-039-01		Binder, Wire		1

EXPLODED VIEW–2



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
2-1	82-150-255-01		Push-key	*	2	
2-2	82-150-319-01		Push-key (Blue)	*	1	
2-3	82-150-320-01		Push-key (Green)	*	1	
2-4	82-150-318-01		Push-key (Red)	*	1	
2-5	82-150-321-01		Spring, Push-key	*	5	
2-6	82-150-253-01		Lever stopper	*	1	
2-7	82-150-316-01		Counter	*	1	
2-8	82-150-252-01		Holder, Lever	*	1	
2-9	82-540-339-01		Belt, Reel platform		1	
2-10	82-150-276-01		Pulley plate ass'y	*	1	
2-11	82-150-294-01		Belt, Counter	*	1	
2-12	82-150-317-01		Shaft, Push-key	*	1	
2-13	82-150-325-01		Spring, REC lever	*	1	
2-14	82-150-282-01		REC lever ass'y	*	1	
2-15	82-150-242-01		Plate spring holder, REC switch	*	1	
2-16	82-150-281-01		REC switch holder ass'y	*	1	
2-17	82-150-330-01		Spring, REC	*	1	
2-18	82-150-254-01		Holder, Protector	*	1	
2-19	82-484-356-01		Spacer, Bracket		2	
2-20	82-150-223-01		Bracket B, CAS	*	1	
2-21	82-150-263-01		Holder, PR spring	*	1	
2-22	82-150-262-01		CAS bracket A ass'y	*	1	
2-23	82-150-260-01		Cassette case ass'y	*	1	
2-24	82-150-342-01		Stopper, CAS	*	1	
2-25	82-150-237-01		Holder, SSW	*	1	
2-26	82-150-275-01		Holder UD plate ass'y	*	1	
2-27	82-150-326-01		Spring, UD plate	*	1	
2-28	82-150-328-01		Spring, Stopper lever	*	1	
2-29	82-150-261-01		Holder UD lever ass'y	*	1	
2-30	82-150-278-01		Mechanism chassis ass'y	*	1	

DISASSEMBLY INSTRUCTIONS

1. To Remove Front Panel

1) Remove Steel cabinet
2) Pull out the control knobs.
3) Remove 2 screws.
(Refer to Fig. 1)

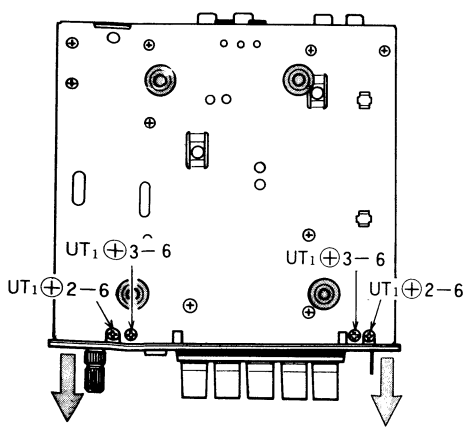


Fig. 1

2. To Remove Mechanism

Remove 5 screws.
(Refer to Fig. 2)

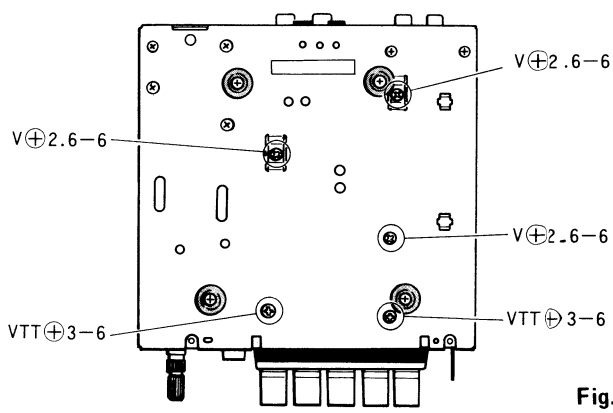
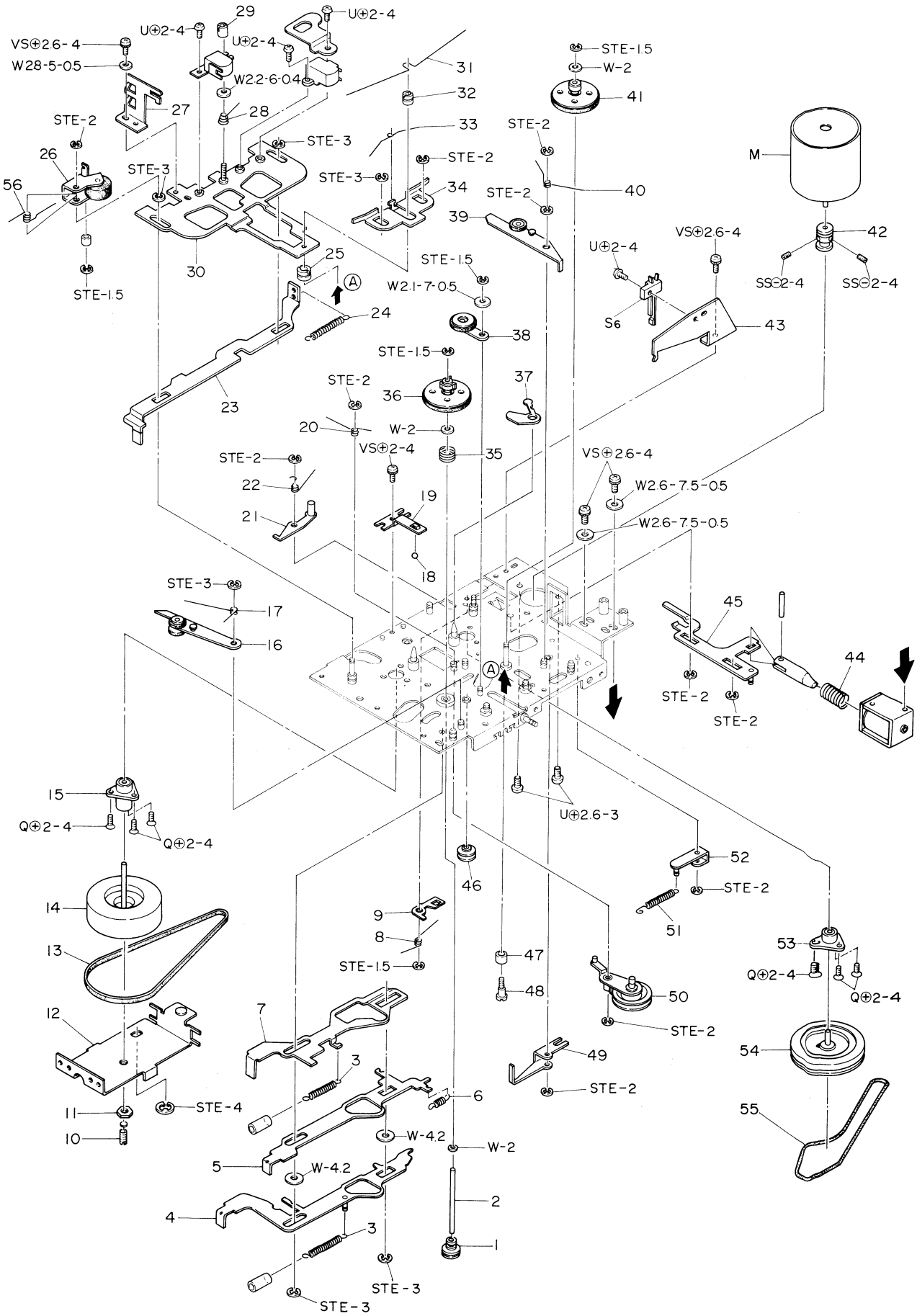


Fig. 2

EXPLODED VIEW–3



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
3-1	82-150-251-01		Counter pulley	*	1	
3-2	82-150-311-01		Reel shaft, REW	*	1	
3-3	82-150-327-01		Spring, STE lever	*	2	
3-4	82-150-240-01		FF lever	*	1	
3-5	82-150-239-01		REW lever	*	1	
3-6	82-150-329-01		Spring, FRD lever	*	2	
3-7	82-150-238-01		STE lever	*	1	
3-8	82-150-286-01		Lock spring	*	1	
3-9	82-150-285-01		Cam plate	*	1	
3-10	82-150-295-01		Screw (for thrust adjustment)	*	1	
3-11	82-150-296-01		Flywheel bearing nut	*	1	
3-12	82-150-274-01		Flywheel bearing ass'y	*	1	
3-13	82-150-292-01		Rubber belt	*	1	
3-14	82-150-290-01		Flywheel ass'y	*	1	
3-15	82-150-291-01		Flywheel shaft bearing (A) ass'y	*	1	
3-16	82-150-298-01		FF arm ass'y	*	1	
3-17	82-150-337-01		Spring, FF arm	*	1	
3-18	82-484-371-01		Steel ball		1	
3-19	82-150-304-01		Slide plate spring, HP	*	1	
3-20	82-150-338-01		Spring, Clutch lever	*	1	
3-21	82-150-280-01		REC Lock plate ass'y	*	1	
3-22	82-150-330-01		Spring, REC	*	1	
3-23	82-150-279-01		Pause lever ass'y	*	1	
3-24	82-484-281-01		Spring, FRD lever		1	
3-25	82-484-328-01		Spacer, HP		1	
3-26	82-150-264-01		PR lever F ass'y	*	1	
3-27	82-150-273-01		Stopper, Head	*	1	
3-28	82-150-271-01		Spring, Azimuth	*	1	
3-29	82-150-272-01		Post A, Azimuth	*	1	
3-30	82-150-270-01		Head plate ass'y	*	1	
3-31	82-484-290-01		Spring, HP		1	
3-32	82-150-302-01		Spacer, HP lock	*	1	
3-33	82-150-307-01		Spring, Brake	*	1	
3-34	82-150-306-01		Brake lever	*	1	
3-35	82-150-312-01		Spring, BT	*	1	
3-36	82-150-310-01		Take-up reel platform ass'y	*	1	
3-37	82-150-248-01		Pause cam	*	1	
3-38	82-150-308-01		Idler ass'y	*	1	
3-39	82-150-297-01		REW arm ass'y	*	1	
3-40	82-150-336-01		Spring, REW arm	*	1	
3-41	82-150-309-01		Supply reel platform ass'y	*	1	
3-42	82-150-267-01		Motor pulley	*	1	
3-43	82-150-225-01		Holder, SW	*	1	
3-44	82-150-284-01		Spring, Solenoid	*	1	
3-45	82-150-265-01		Lock eject plate ass'y	*	1	
3-46	82-150-241-01		Tansion pulley	*	1	
3-47	82-484-377-01		Roller		1	
3-48	82-150-301-01		Shaft, HP lock	*	1	
3-49	82-150-236-01		Lock plate	*	1	
3-50	82-150-288-01		Clutch ass'y	*	1	
3-51	82-150-323-01		Spring, Lock lever	*	1	
3-52	82-150-268-01		FRD lock lever ass'y	*	1	
3-53	82-150-340-01		FW shaft bearing (B) ass'y	*	1	
3-54	82-150-332-01		Fly wheel ass'y	*	1	
3-55	82-150-293-01		Clutch belt	*	1	
3-56	82-150-314-01		PR spring F	*	1	

ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1	82-150-856-01		Printed indiv., Packing	*	1	
2	82-150-852-01		Cushion L, Printed indiv.	*	1	
3	82-150-853-01		Cushion R, Printed indiv.	*	1	
4	87-051-131-11		Poly-vinyl sack (H model only)		1	
5	87-051-130-11		Poly-vinyl sack (E model only)		1	
6	87-051-135-11		Poly-vinyl sack (E, K, G model only)		1	
7	87-056-603-01		Poly-vinyl sack (for case)		1	
8	82-150-902 01		Instructions booklet (H model only)	*	1	
9	82-150-903-01		Instructions booklet (E model only)	*	1	
10	82-150-904-01		Instructions booklet (K model only)	*	1	
11	82-150-905-01		Instructions booklet (G model only)	*	1	
12	87-051-130-11		Poly-vinyl sack (H model only)		1	
13	87-051-175-01		Poly-tube A		1	
14	87-056-008-11		Label, AC power cord (K model only)		1	
15	87-056-009-01		Distributors list (H model only)		1	
16	87-056-009-41		Distributors list (E, K, G model only)		1	
17	87-056-032-01		Guarantee card (G model only)		1	
18	82-498-010-01		Handle (E_1, H_1, K_1 model only)	S-C22	1	
19	86-444-015-01		Connection cord, CW-129CSK (H, G model only)		2	
20	86-925-016-01		Connection cord, CW-115CSK (E , K model only)		1	
21	87-032-845-01		Siemens plug (H model only)		1	
22	87-058-024-01		Head cleaning pole ass'y		1	

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ELECTRICAL MAIN PARTS

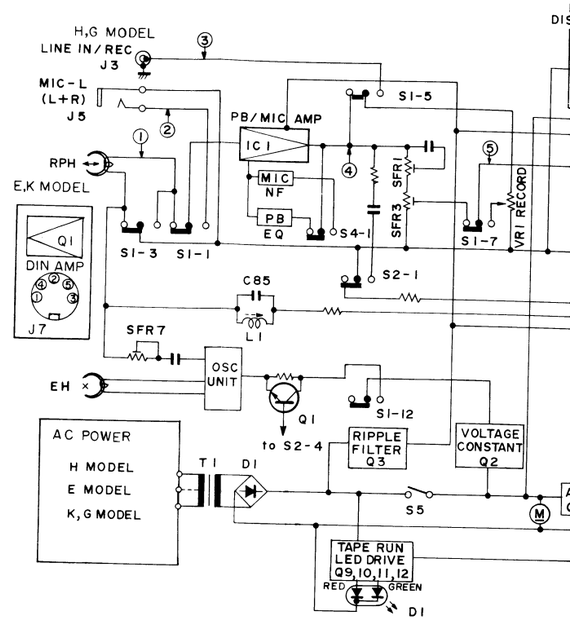
Symbol No.	Part No.	Description
≪MAIN CIRCUIT BOARD SECTION≫		
PCB-A	82-150-607-31	Main circuit board
IC1	87-027-453-01	IC, AN7311
IC4,5	87-027-351-01	IC, LB-1416
Q1,4	89-318-155-01	Transistor, 2SC1815 (GR)
Q2	89-313-173-01	Transistor, 2SC1317 (Q)
Q3	89-318-154-01	Transistor, 2SC1815 (Y)
Q6	89-107-336-01	Transistor, 2SA733 (P)
Q7,8	89-406-555-01	Transistor, 2SD655 (E)
D1	87-027-097-01	Diode, IS1555
D2	87-027-474-01	Zener diode, HZ11A2
L3	82-371-648-01	Micro inductor coil, 6.8 mH
OSC UNIT	82-150-620-01	OSC unit
S1	87-031-506-01	Slide switch (REC/PB)
J5,6	87-032-952-01	Jack, 6.3φ (MIC)
SFR1,3,5 7,8	87-021-569-01	Semi-fixed resistor, 50kΩ-B
SFR9,10	87-021-567-01	Semi-fixed resistor, 10kΩ-B
PIN1,2	87-032-903-01	Pin, 3P
		<**Capacitors**>
C3,4	87-015-246-01	4.7μF 25V Electrolytic LL
C8	87-015-487-01	4.7μF 25V Electrolytic LS
C7	87-015-486-01	100μF 10V Electrolytic LS
C102,103	87-015-480-01	220μF 16V Electrolytic LS
C10	87-015-467-01	220μF 10V Electrolytic LS
≪REC VOLUME CIRCUIT BOARD SECTION≫		
PCB-B	82-150-608-31	Rec. volume circuit board
Q5	89-318-155-01	Transistor, 2SC1815 (GR)
L1,2	87-008-173-01	Bias trap coil
L4	82-371-648-01	Micro inductor coil, 6.8 mH
VR1,2	82-150-621-01	Volume, 50kΩ-A (REC LEVEL)
SFR2,4,6	87-021-569-01	Semi-fixed resistor, 50kΩ-B
		<**Capacitor**>
C85,86	87-014-045-01	330pF PP
≪SWITCH CIRCUIT BOARD SECTION≫		
PCB-C	82-150-609-11	Switch circuit board
S2	87-031-507-01	Push switch (TAPE SELECTOR)
S3,4	87-031-508-01	Push switch (DOLBY NR, INPUT SELECTOR)
	87-032-641-01	Pin, 11P
≪DOLBY CIRCUIT BOARD SECTION≫		
PCB-D	82-150-610-31	Dolby NR circuit board
IC2	87-027-460-01	IC, LM1011N
LPF1,2	87-030-061-01	Low-pass filter
	87-032-637-01	Pin, 7P
		<**Capacitor**>
C31	87-015-241-01	1μF 50V Electrolytic LL
C39	82-371-643-01	0.0047μF PP
C41	82-371-642-01	0.0056μF PP
C43	82-371-641-01	0.027μF PP
≪JACK CIRCUIT BOARD SECTION≫ = H,G model only		
PCB-E	82-150-611-11	Jack circuit board
J1,2,3,4	82-399-609-01	Jack ass'y (LINE OUT/PLAY, LINE IN/REC)
≪LED-1 CIRCUIT BOARD SECTION≫		
PCB-F	82-150-612-01	LED-1 circuit board
D1,2	87-027-462-01	Light emitting diode

Symbol No.	Part No.	Description
≪LED-2 CIRCUIT BOARD SECTION≫		
PCB-G	82-150-634-01	LED-2 circuit board
D1	87-027-463-01	Light emitting diode
≪POWER CIRCUIT BOARD SECTION≫		
⚠ PCB-H	82-150-615-01	Power circuit board
Q9,10,11 12,13	89-318-155-01	Transistor, 2SC1815 (GR)
D1	87-027-376-01	Diode, 1B4B41
⚠ F1	87-035-216-01	Fuse, "T" 200 mA (H model only)
	87-098-009-01	Fuse label, "T" 200 mA (H model only)
⚠ F1	87-035-219-01	Fuse "T" 500mA (E,K,G model only)
	87-098-013-01	Fuse label, "T" 500 mA (E,K,G model only)
⚠	87-033-147-01	Fuse clamp
PIN3,4	87-032-903-01	Pin, 3P
≪AUTO STOP CIRCUIT BOARD SECEION≫		
PCB-J	82-150-256-01	Auto stop circuit board
	82-150-256-01	AS PCB ass'y (AUTO STOP)
≪DME CIRCUIT BOARD SECTION≫		
PCB-K	82-150-277-01	DME circuit board
	82-150-277-01	DME PCB ass'y
≪DIN CIRCUIT BOARD SECTION≫ = E,K model only		
PCB-L	82-150-633-01	DIN circuit board
RY1	84-184-612-01	Reed relay HA212N
Q1,2	89-309-456-01	Transistor, 2SC945L (P)
J7	82-150-622-01	Terminal plate ass'y (DIN, REC/PLAY)
≪POWER SWITCH CIRCUIT BOARD SECTION≫ = E,K,G model only		
⚠ PCB-M	82-730-628-01	Power switch circuit board
⚠ S8	87-031-501-01	Lever switch (POWER)
		<**Capacitors**>
⚠ C202	87-019-101-01	0.022μF 250V Line capacitor (E model only)
⚠ C202,203	87-019-101-01	0.022μF 250V Line capacitor (K,G model only)
≪MISCELLANEOUS≫		
⚠ T1	82-150-602-01	Power transformer (H model only)
⚠ T1	82-150-604-01	Power transformer (E model only)
⚠ T1	82-150-605-01	Power transformer (K,G model only)
RPH	87-046-159-01	Rec./Pb head
EH	87-046-131-01	Erase head
SOL1	82-150-283-01	Solenoid ass'y
M	82-150-266-01	DC motor
S5	82-150-238-01	Micro switch (AUTO STOP)
S6	82-150-269-01	Leaf switch (AUTO STOP)
S7	82-150-289-01	Leaf switch (AUTO STOP)
⚠ S8	87-031-515-01	Lever switch (POWER) (H model only)
⚠ S9	87-031-364-01	Slide switch (VOLTAGE SELECTOR) (H model only)
⚠ CP1	87-028-036-01	Compound capacitor (H model only)

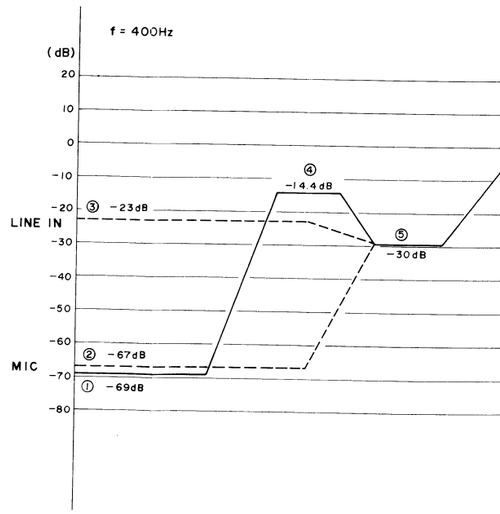
Symbol No.	Part No.	Description
⚠	87-034-826-01	AC power cord (H model only)
⚠	87-034-877-01	AC power cord (E model only)
⚠	87-034-872-01	AC power cord (K model only)
⚠	87-034-878-01	AC power cord (G model only)
⚠	87-085-166-01	Holder, AC power cord (E,K,G model only)
⚠	87-085-165-01	Cord bushing (H model only)
CON-1	82-150-625-01	Connector ass'y, 3P
CON-2	82-150-626-01	Connector ass'y, 3P
CON-3	82-150-627-01	Connector ass'y, 3P
CON-4	82-150-628-01	Connector ass'y, 3P

⚠ This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

BLOCK DIAGRAM



LEVEL DIAGRAM

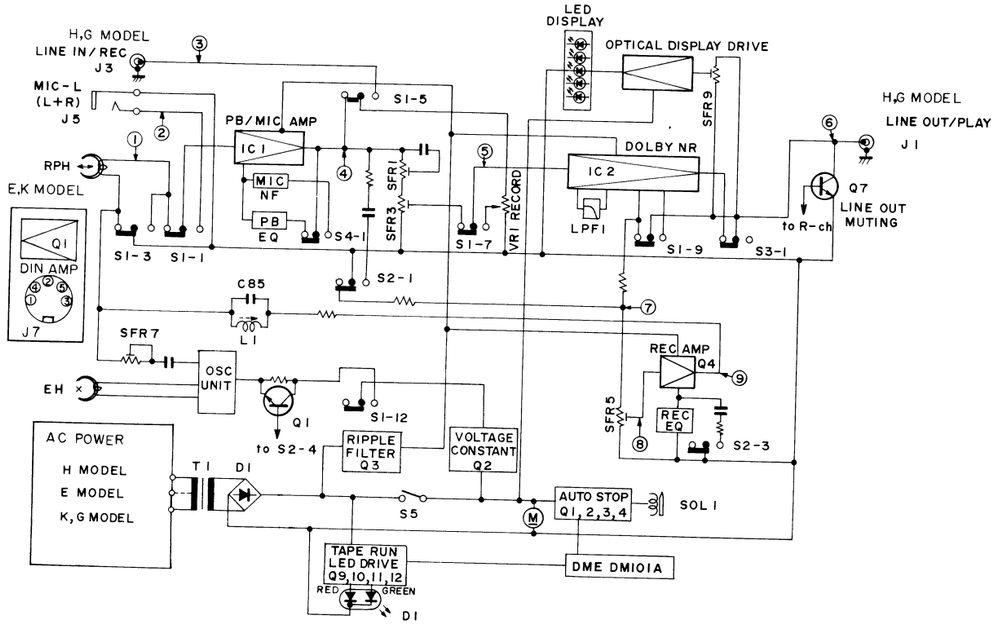


Symbol No.	Part No.	Description
		≪LED-2 CIRCUIT BOARD SECTION≫
PCB-G	82-150-634-01	LED-2 circuit board
D1	87-027-463-01	Light emitting diode
		≪POWER CIRCUIT BOARD SECTION≫
⚠ PCB-H	82-150-615-01	Power circuit board
Q9,10,11 12,13	89-318-155-01	Transistor, 2SC1815 (GR)
D1	87-027-376-01	Diode, 1B4B41
⚠ F1	87-035-216-01	Fuse, "T" 200 mA (H model only)
	87-098-009-01	Fuse label, "T" 200 mA (H model only)
⚠ F1	87-035-219-01	Fuse "T" 500mA (E,K,G model only)
	87-098-013-01	Fuse label, "T" 500 mA (E,K,G model only)
⚠	87-033-147-01	Fuse clamp
PIN3,4	87-032-903-01	Pin, 3P
		≪AUTO STOP CIRCUIT BOARD SECEION≫
PCB-J	82-150-256-01	Auto stop circuit board
	82-150-256-01	AS PCB ass'y (AUTO STOP)
		≪DME CIRCUIT BOARD SECTION≫
PCB-K	82-150-277-01	DME circuit board
	82-150-277-01	DME PCB ass'y
		≪DIN CIRCUIT BOARD SECTION≫ = E,K model only
PCB-L	82-150-633-01	DIN circuit board
RY1	84-184-612-01	Reed relay HA212N
Q1,2	89-309-456-01	Transistor, 2SC945L (P)
J7	82-150-622-01	Terminal plate ass'y (DIN, REC/PLAY)
		≪POWER SWITCH CIRCUIT BOARD SECTION≫ = E,K,G model only
⚠ PCB-M	82-730-628-01	Power switch circuit board
⚠ S8	87-031-501-01	Lever switch (POWER)
		<**Capacitors**>
⚠ C202	87-019-101-01	0.022μF 250V Line capacitor (E model only)
⚠ C202,203	87-019-101-01	0.022μF 250V Line capacitor (K,G model only)
		≪MISCELLANEOUS≫
⚠ T1	82-150-602-01	Power transformer (H model only)
⚠ T1	82-150-604-01	Power transformer (E model only)
⚠ T1	82-150-605-01	Power transformer (K,G model only)
RPH	87-046-159-01	Rec./Pb head
EH	87-046-131-01	Erase head
SOL1	82-150-283-01	Solenoid ass'y
M	82-150-266-01	DC motor
S5	82-150-238-01	Micro switch (AUTO STOP)
S6	82-150-269-01	Leaf switch (AUTO STOP)
S7	82-150-289-01	Leaf switch (AUTO STOP)
⚠ S8	87-031-515-01	Lever switch (POWER) (H model only)
⚠ S9	87-031-364-01	Slide switch (VOLTAGE SELECTOR) (H model only)
⚠ CP1	87-028-036-01	Compound capacitor (H model only)

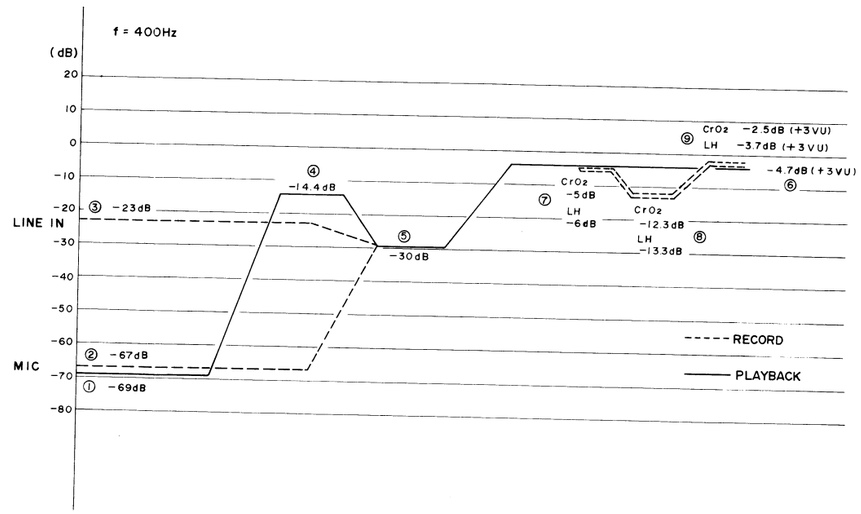
Symbol No.	Part No.	Description
⚠	87-034-826-01	AC power cord (H model only)
⚠	87-034-877-01	AC power cord (E model only)
⚠	87-034-872-01	AC power cord (K model only)
⚠	87-034-878-01	AC power cord (G model only)
	87-085-166-01	Holder, AC power cord (E,K,G model only)
⚠	87-085-165-01	Cord bushing (H model only)
CON-1	82-150-625-01	Connector ass'y, 3P
CON-2	82-150-626-01	Connector ass'y, 3P
CON-3	82-150-627-01	Connector ass'y, 3P
CON-4	82-150-628-01	Connector ass'y, 3P

⚠ This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

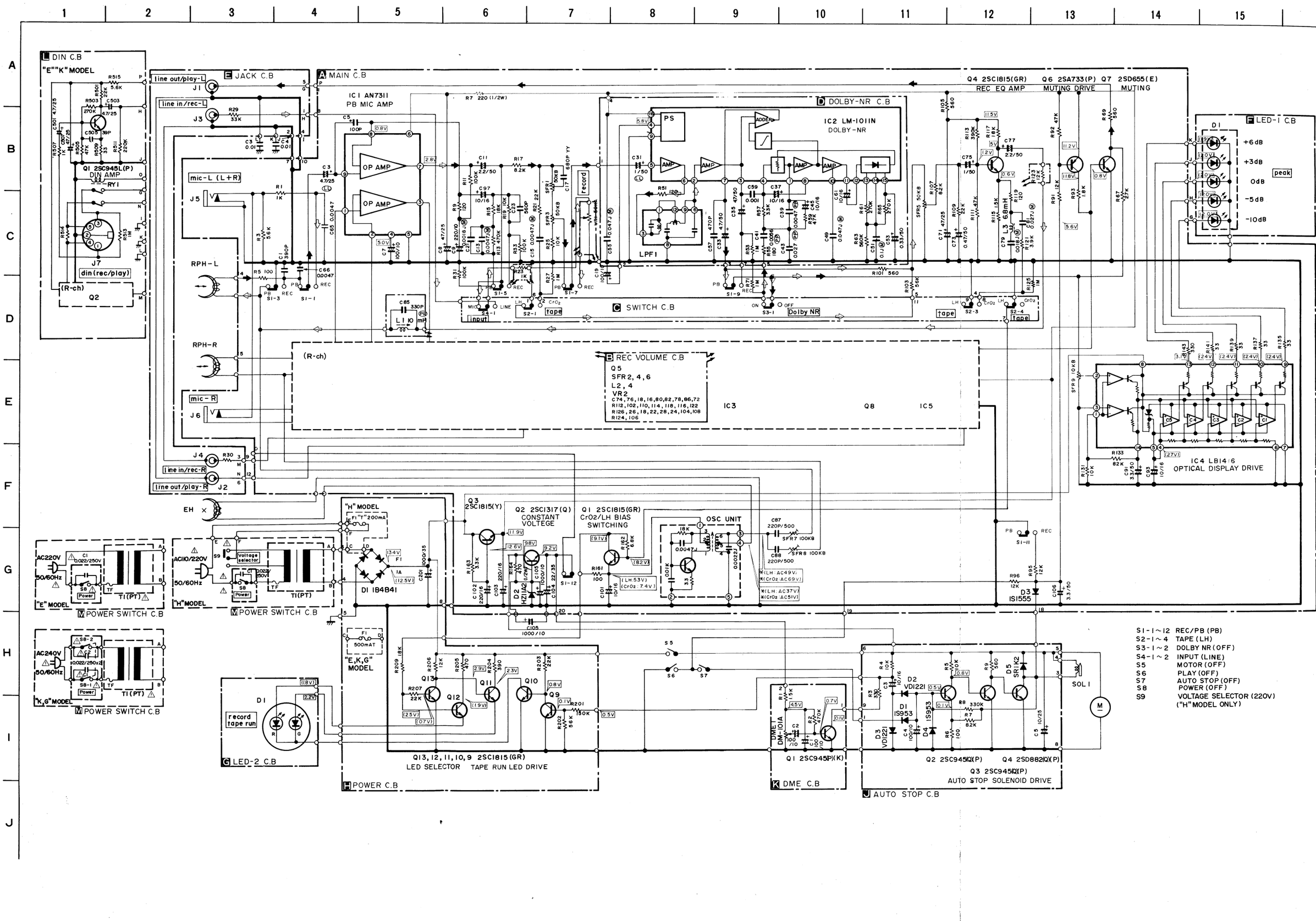
BLOCK DIAGRAM

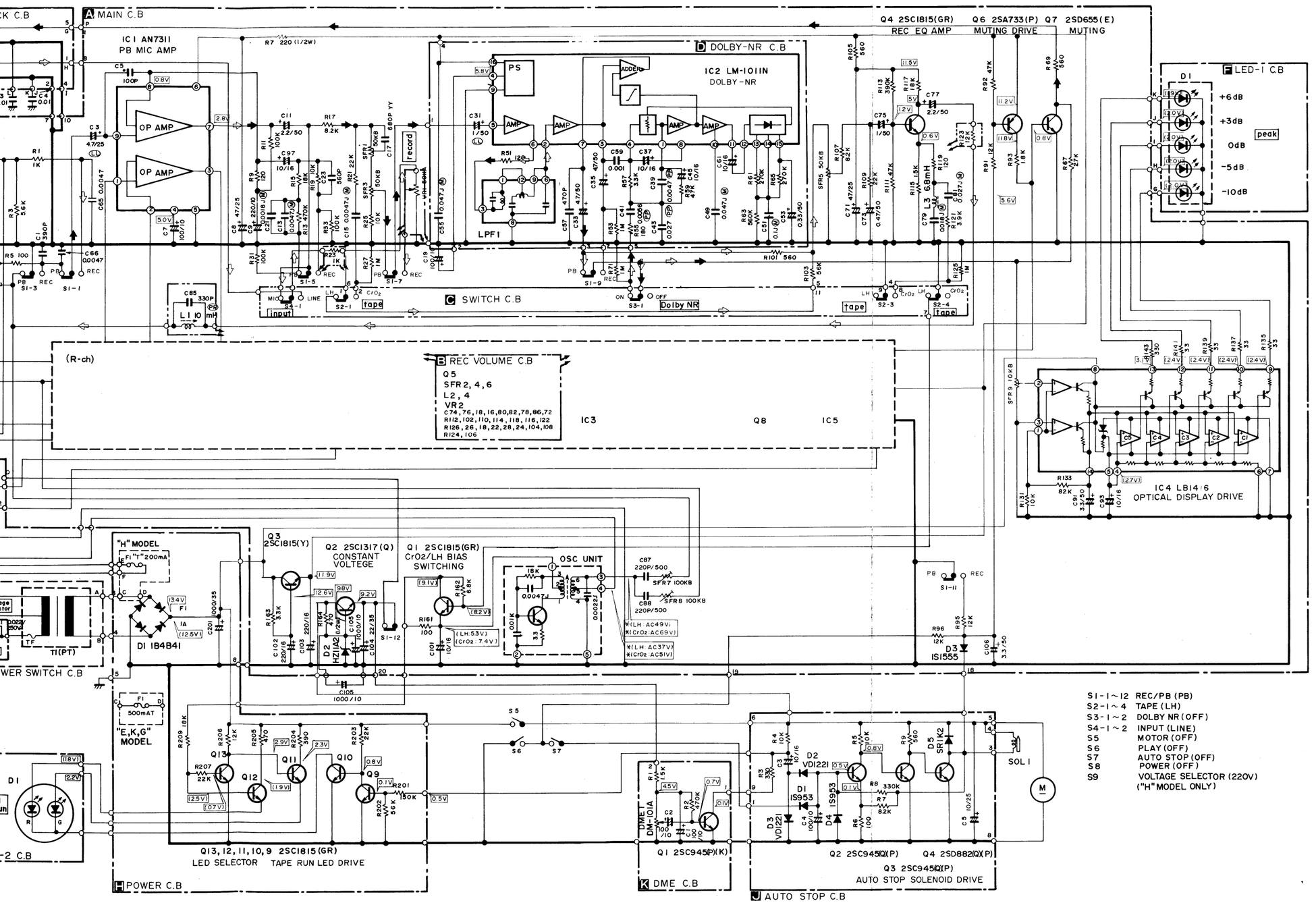


LEVEL DIAGRAM



SCHEMATIC DIAGRAM



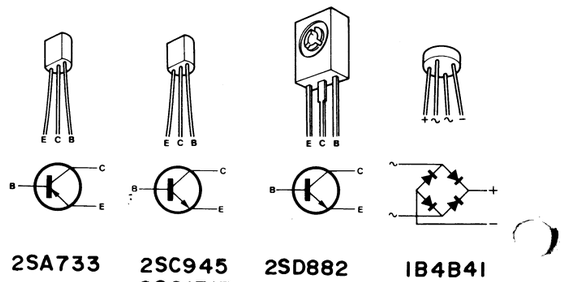


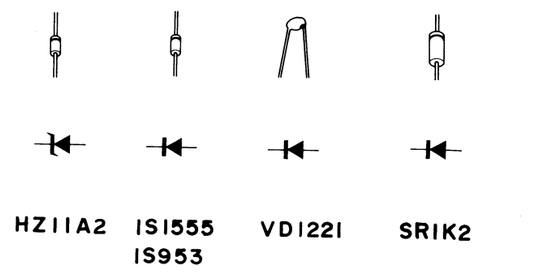
NOTES:

1) — B (+) power supply
2) ➡ Signal path
   ⇨ Rec path,
3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
   But ( ) is with recording.
   An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
4) Resistors with no designation have a rated power of ⅛W and a tolerance of ±5%.
5) Capacitors with no designation have a dielectric strength of less than 50WV.
6) The only capacitor tolerances indicated are ±5% (J) and ±10% (K).
7) Ceramic capacitor symbols:
   - For temperature compensation (SL)
   - High dielectric constant system (YY)
   - High dielectric constant system (YW, YP, YZ)
   - Semiconductor ceramic
8) Explanation of symbols
   - (M) Mylar capacitor
   - (PP) Polypropylene film capacitor
   - (LL) Low-leakage capacitor
   - ⚠ Safety component symbol
     This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.

S1-1~12 REC/PB (PB)
S2-1~4 TAPE (LH)
S3-1~2 DOLBY NR (OFF)
S4-1~2 INPUT (LINE)
S5 MOTOR (OFF)
S6 PLAY (OFF)
S7 AUTO STOP (OFF)
S8 POWER (OFF)
S9 VOLTAGE SELECTOR (220V) ("H" MODEL ONLY)





1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A B C D E F G H I J

2. Playback Level Adjustment

Settings:

- Test tape: TTA-161
- TAPE SELECTOR switch: LH
- Adjustment locations: SFR3 (L-ch), SFR4 (R-ch)

Method:

Play back the test tape and adjust so that the LINE output is 580 mV.

3. Playback Frequency Characteristic Adjustment

Settings:

- Test tape: TTA-117E
- TAPE SELECTOR switch: CrO_2
- DOLBY NR switch: OFF
- Adjustment locations: SFR1 (L-ch), SFR2 (R-ch)

Method:

Play back the test tape and adjust so that the 1 kHz and 10 kHz outputs are identical.

Rating:

0 ± 0.5 dB

4. Bias Trap Coil Adjustment

Settings:

- Recording mode
- REC VOLUME: MIN
- Test points: TP1 (L-ch), TP2 (R-ch)
- Adjustment locations: L1 (L-ch), L2 (R-ch)

Method:

Adjust L1, 2 so that the voltage at test point TP1,2 is reduced to minimum value. Bias OSC frequency become 85 ± 5 kHz.

1. Azimuth Adjustment

Settings:

- Play back mode
- Output Level: MAX
- Test tape: TTA-117E
- TAPE SELECTOR switch: CrO_2
- Adjustment location: azimuth adjusting screw

Method:

Play back the test tape and adjust so that the output of the 10 kHz section reaches the maximum and same phase for both the left and right channel.

TP 2 Bias trap test point

TP 1 Bias trap test point

R.P.H

B REC VOLUME C.B

E JACK C.B ("H""G" MODEL ONLY)

L DIN C.B ("E""K" MODEL ONLY)

J AUTO STOP C.B

H POWER C.B

K DME C.B

D DOLBY-NR C.B

L DIN C.B ("E""K" MODE ONLY)

S1 (REC/PB)

S5 (MOTOR)

S6 (PLAY)

S7 (AUTO STOP)

SOL1

OSC UNIT

CON1

J6 J5

R – mic – L (L+R)

E H

A MAIN C.B

"H" MODEL ONLY

S9 (Voltage selector)

S8 Power

220V 110V

T1

AC110V/220V 50/60Hz

F1 "T" 200mA

H POWER C.B

CON4

G LED-2 C.B

CON2

A MAIN C.B

F LED-1 C.B

C SWITCH C.B

S4 input S3 Dolby NR S2 tape

SWITCH C.B

C DOLBY-NR C.B

DOLBY-NR C.B

record

right peak left

5. REC./PB. Frequency ment

■ **LH tape**

Settings:

- Recording mode
- Test tape: CS-10
- Input signal: 400 Hz, –
- Output level: LINE OU
- TAPE SELECTOR switc
- DOLBY NR switch: OF
- Adjustment locations: S

Method:

Record and play back th
Adjust so that the 1 kH
indentical.
(E, K model only)
0VU LED (Orange) ligh
brought in –50 dB (at
signal decrease by 20 dB.

Rating:

0 ± 0.5 dB

■ **CrO_2 tape** (Test tape: T

Rating:

0 ± 1 dB

7. Level Indicator Adjust

Settings:

- Recording mode
- Test tape: TTA-119E
- Input signal: 400 Hz, –1
- DOLBY NR switch: OFF
- Adjustment locations: SF

Method:

Adjust the REC level s
becomes 580 mV when
–10 dB (at 400 Hz). Fol
that the +3 dB LED (
+3 dB LED (Orange) p
decrease by 1 dB.

6. REC./PB. Sensitivity A

■ **LH tape**

Settings:

- Recording mode
- Test tape: CS-10
- Input signal: 400 Hz, –1
- TAPE SELECTOR switch
- DOLBY NR switch: OFF
- Adjustment locations: SE

Method:

Record and play back t
that the LINE OUTPUT
becomes 410 mV.
(E, K model only)
0VU LED (Orange) light
brought in –50 dB (at 40

Rating:

410 ± 10 mV

■ **CrO_2 tape** (Test tape: TT

Rating:

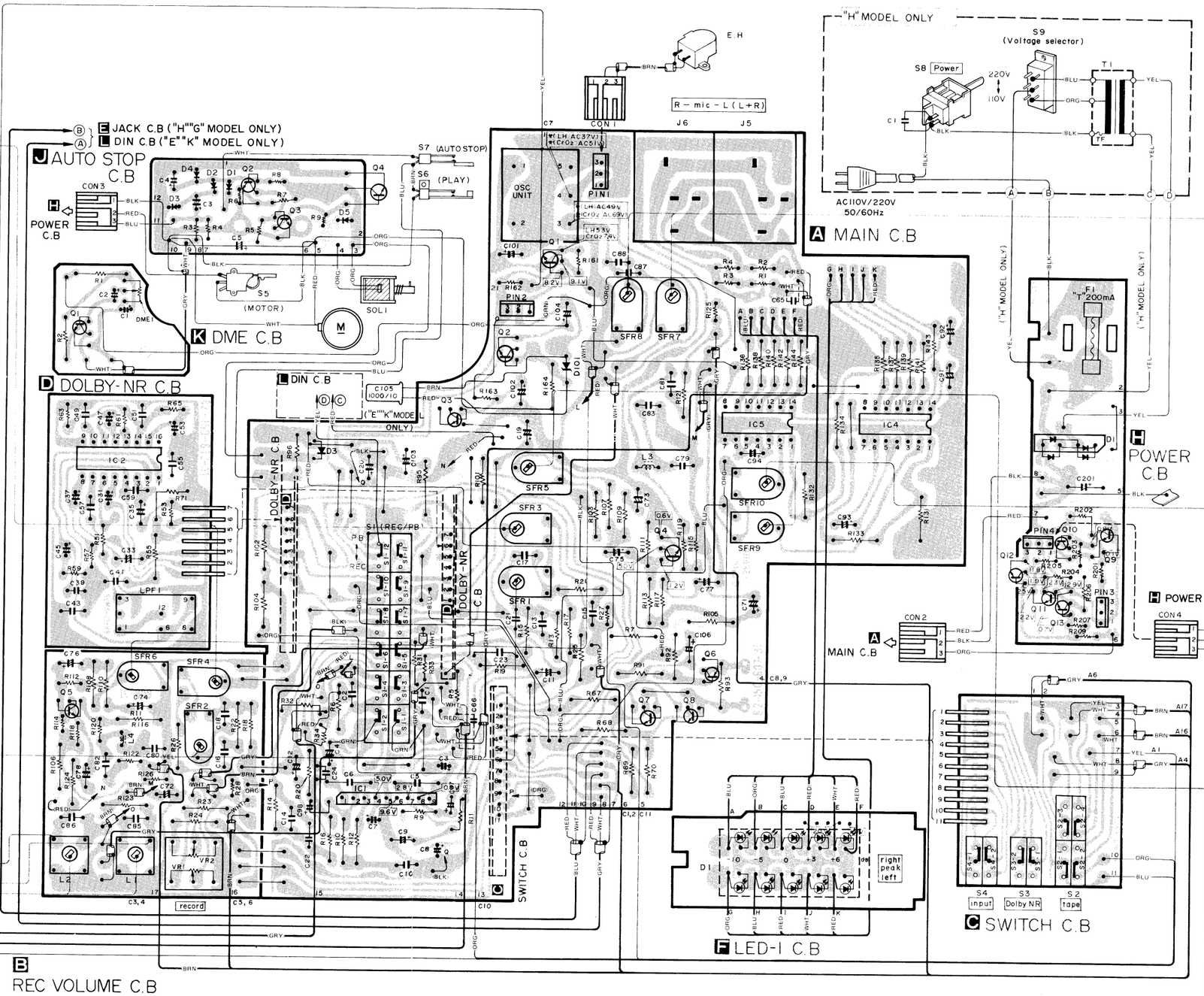
0 ± 1 dB

NOTES (1) B(+) Pattern Others pattern

(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

FR4 (R-ch)
hat the LINE
c Adjust-
R2 (R-ch)
at the 1 kHz
ch)
point TP1,2
C frequency
screw
t the output
aximum and
annel.
est point
est point



5. REC./PB. Frequency Characterstic Adjustment

■ **LH tape**

Settings:

- Recording mode
- Test tape: CS-10
- Input signal: 400 Hz, −30 dB
- Output level: LINE OUTPUT 41 mV
- TAPE SELECTOR switch: LH
- DOLBY NR switch: OFF
- Adjustment locations: SFR7 (L-ch), SFR8 (R-ch)

Method:

Record and play back the 1 kHz and 10 kHz signals. Adjust so that the 1 kHz and 10 kHz outputs are indentical.
(E, K model only)
0VU LED (Orange) lights up when the input signal brought in −50 dB (at 400 Hz). Following input signal decrease by 20 dB.

Rating:

0 ± 0.5 dB

■ **CrO_2 tape** (Test tape: TTA-119G)

Rating:

0 ± 1 dB

7. Level Indicator Adjustment

Settings:

- Recording mode
- Test tape: TTA-119E
- Input signal: 400 Hz, −10 dB
- DOLBY NR switch: OFF
- Adjustment locations: SFR9 (L-ch), SFR10 (R-ch)

Method:

Adjust the REC level so that the LINE output becomes 580 mV when the input signal brought in −10 dB (at 400 Hz). Following adjust SFR9, 10 so that the +3 dB LED (Orange) lights up. Finally +3 dB LED (Orange) put out when input signal decrease by 1 dB.

6. REC./PB. Sensitivity Adjustment

■ **LH tape**

Settings:

- Recording mode
- Test tape: CS-10
- Input signal: 400 Hz, −10 dB
- TAPE SELECTOR switch: LH
- DOLBY NR switch: OFF
- Adjustment locations: SFR5 (L-ch), SFR6 (R-ch)

Method:

Record and play back the test tape and adjust so that the LINE OUTPUT (E, K model: DIN output) becomes 410 mV.
(E, K model only)
0VU LED (Orange) lights up when the input signal brought in −50 dB (at 400 Hz).

Rating:

410 ± 10 mV

■ **CrO_2 tape** (Test tape: TTA-119G)

Rating:

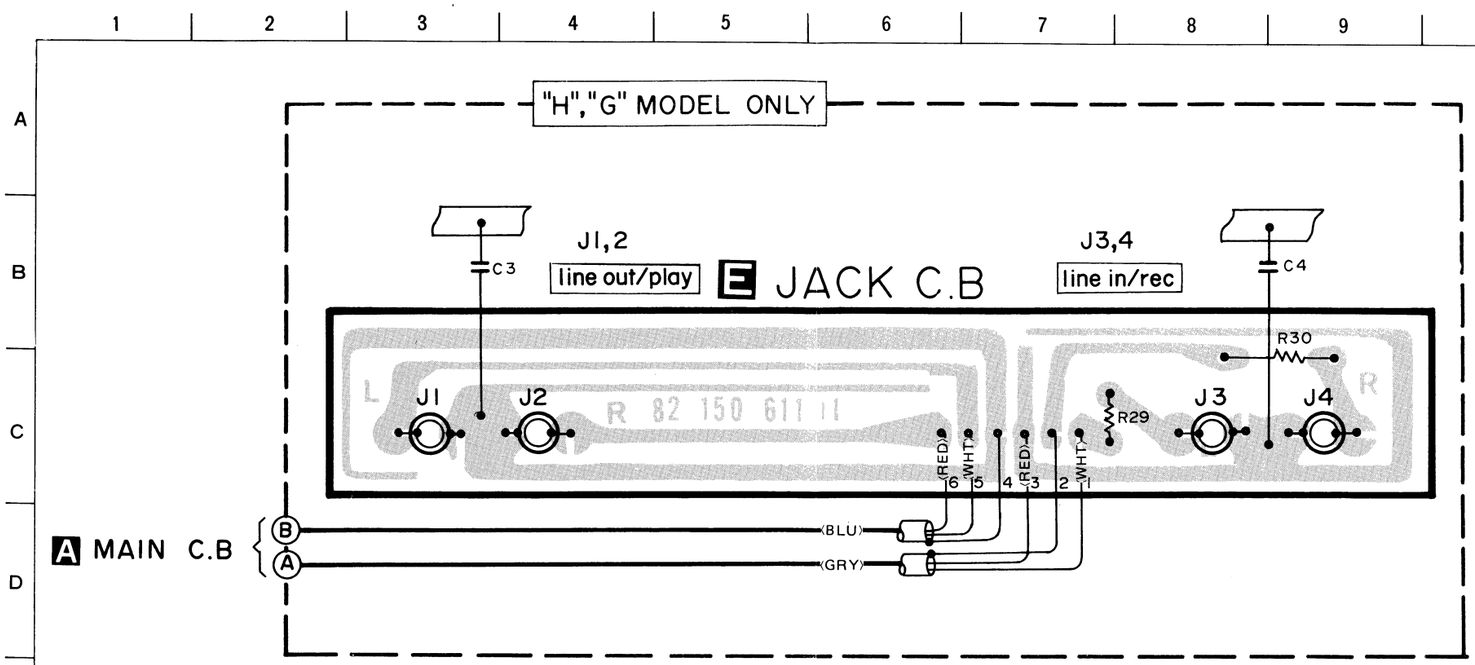
0 ± 1 dB

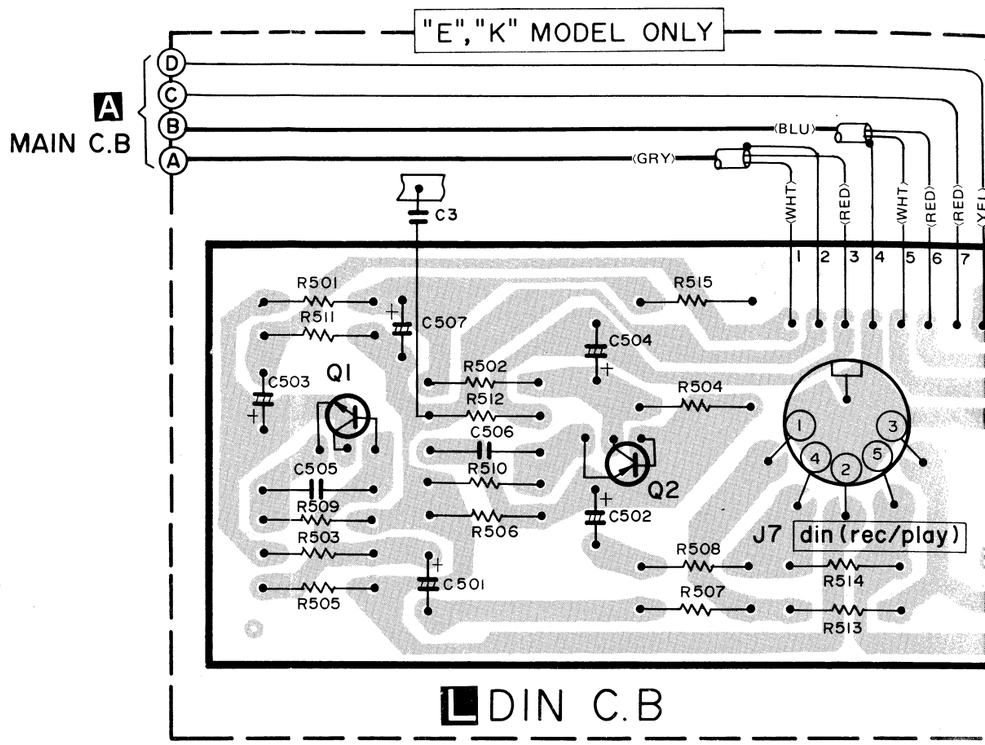
NOTES (1) B(+) Pattern Others pattern

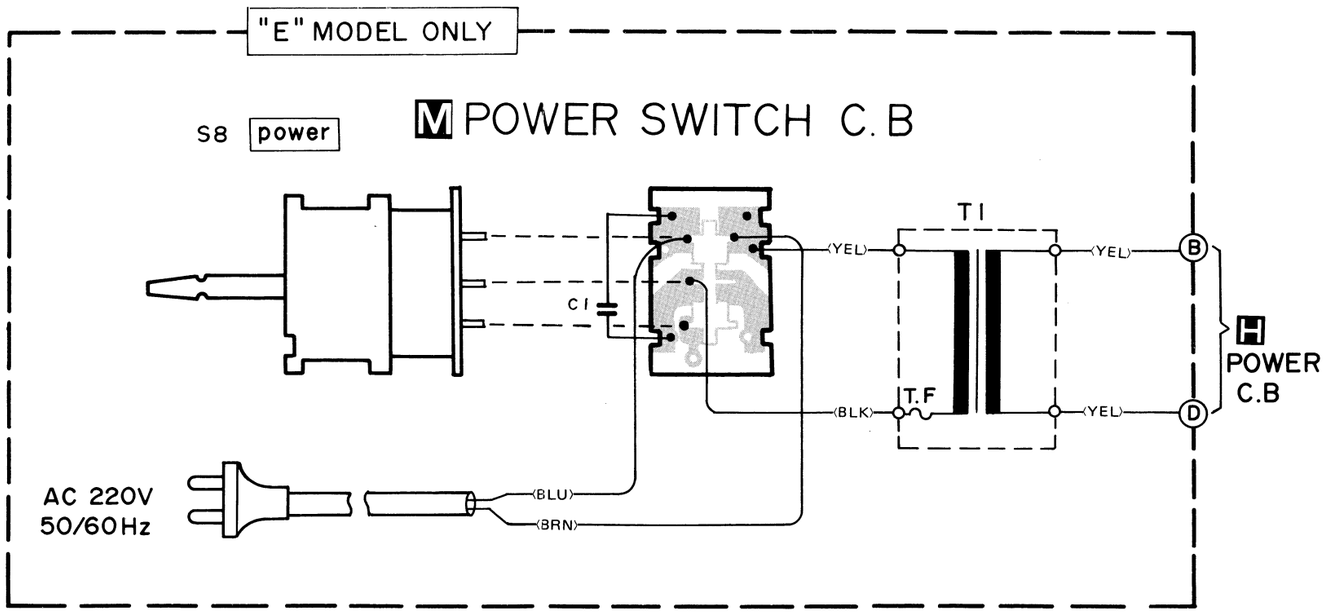
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

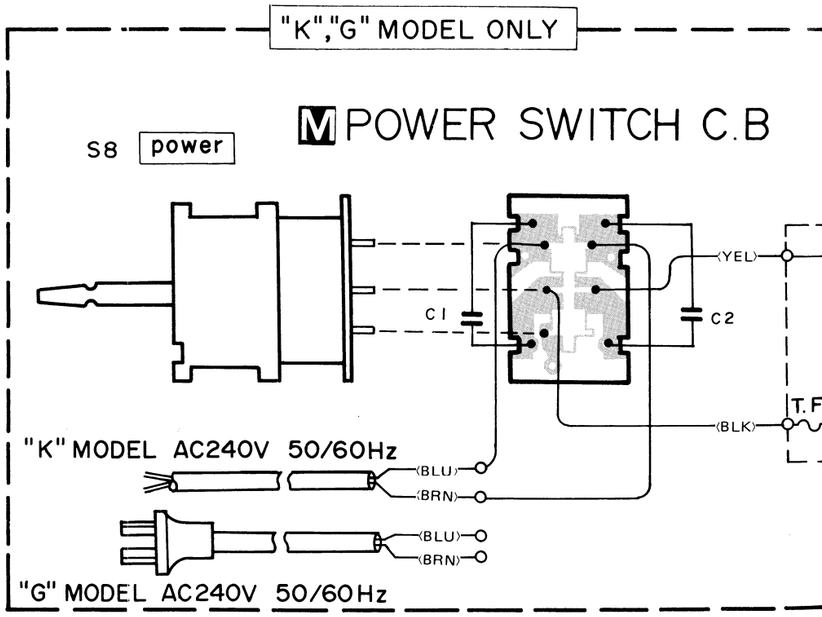
SD-L22H,E,K,G
SD-L22H,E,K,G

WIRING–2

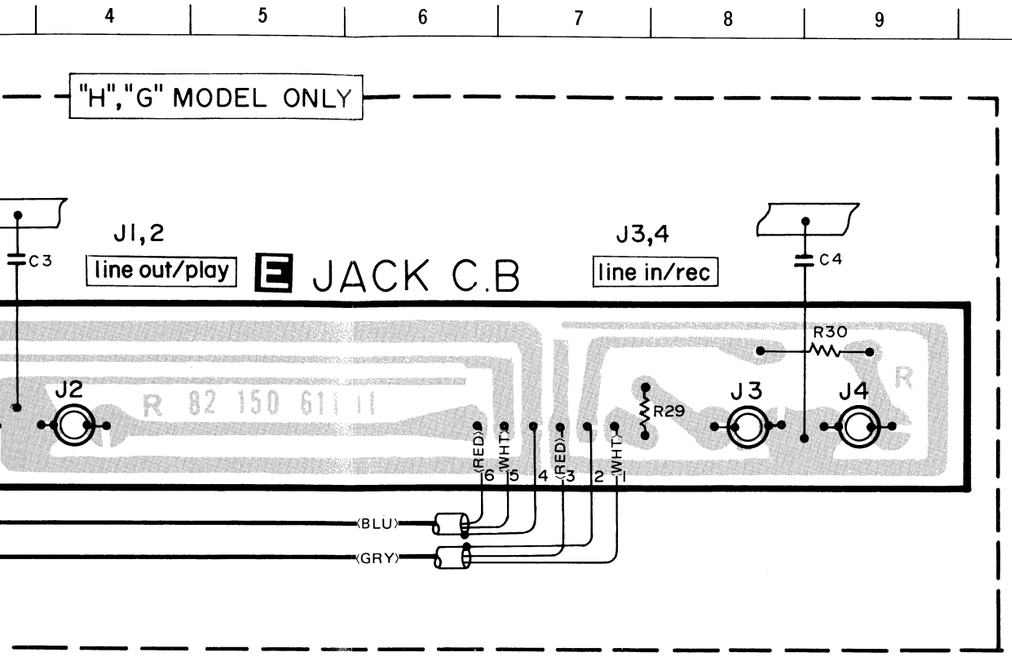


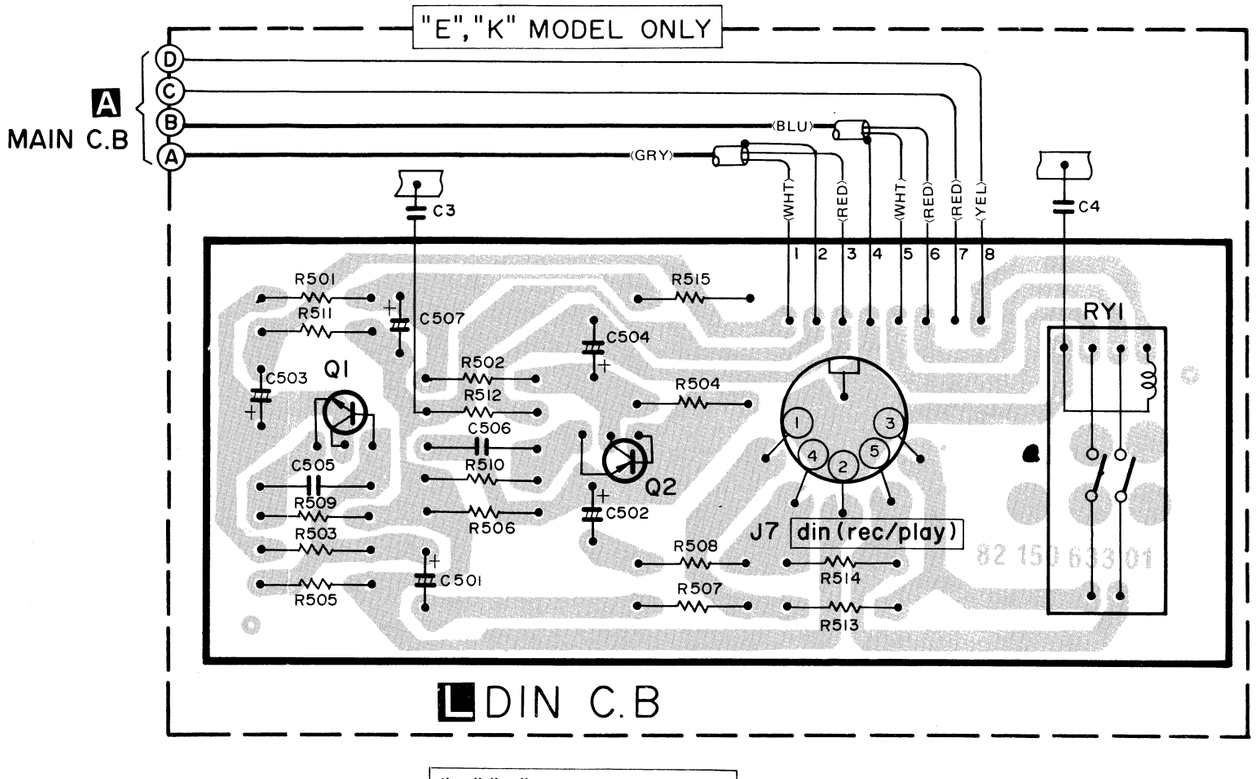


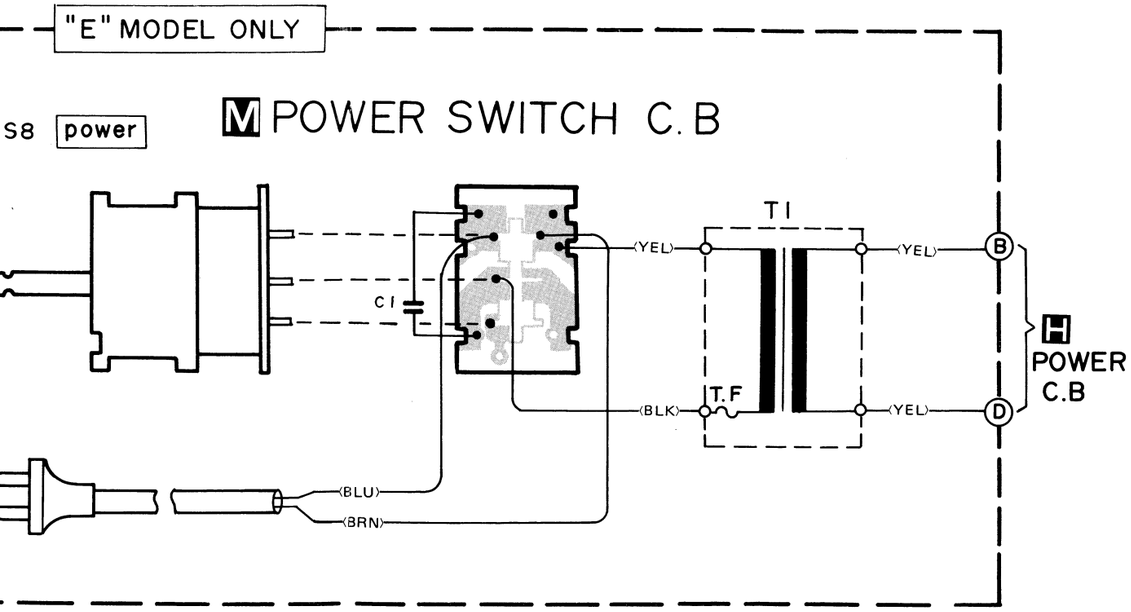


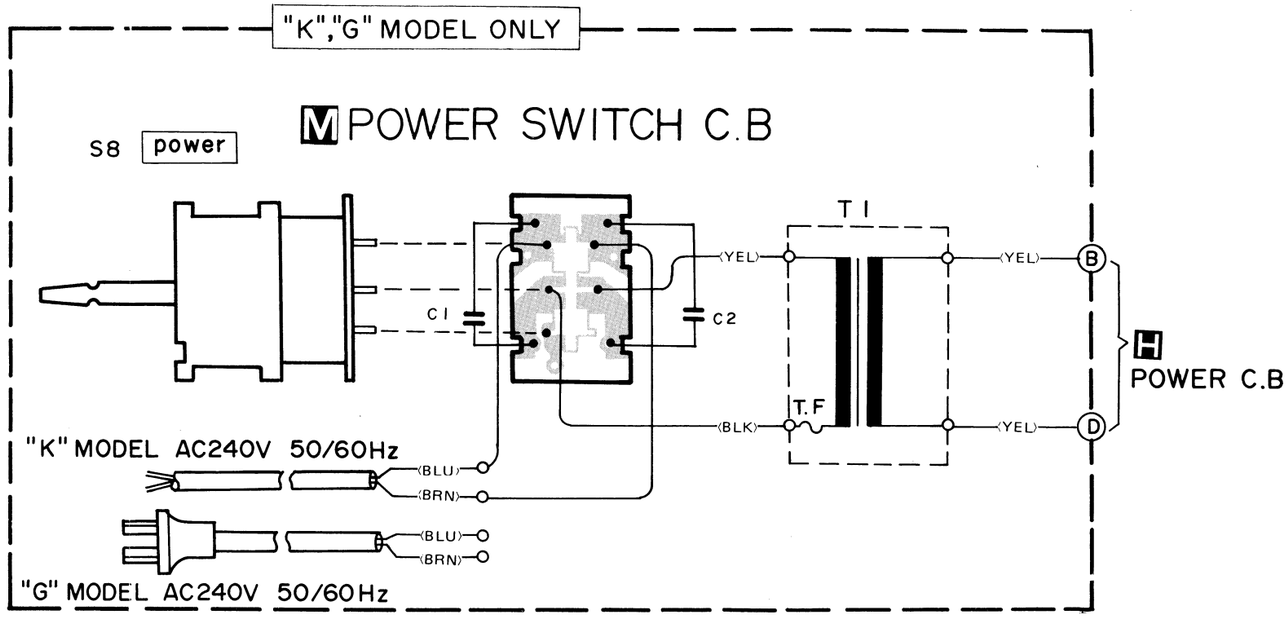


NOTES B(+) Pattern Others pattern









NOTES B(+) Pattern Others pattern